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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/702,130

11/05/2003

Hiroshi Kurachi

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EXAMINER

OLSEN, KAJ K

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/20/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/702,130	Applicant(s) KURACHI ET AL.	
	Examiner KAJ K. OLSEN	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 May 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5,9,13,17,21 and 22 is/are rejected.
- 7) ☒ Claim(s) 2-4,6-8,10-12,14-16 and 18-20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>7-1-2008</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 5, 9, 13 and 17 are rejected under 35 U.S.C. 102(b) as being anticipated by Kato et al (USP 4,909,922). Kato was previously cited, but is being relied on for the first time with this office action. Its use here was necessitated by the applicant's amendment to the claims.

3. Kato discloses a gas sensor which comprises a gas detecting section 14 and a heater section 16 secured in the gas sensor including a heating element 30 sandwiched between two porous layers (32, 34) that define a support that supports the heating element (col. 6, ll. 19-23). Kato discloses a space defined by porous element 54 that would read on the defined reference gas space, giving the claim language its broadest reasonable interpretation. Said porous element 54 extends along a longitudinal direction of the sensor (fig. 4). Kato further discloses an opening section 52 extending through and being completely surrounded by at least one layer 50 of the gas sensor, where the opening section is substantially perpendicular to the reference gas spaced (fig. 4) and provides communication between the reference gas space and the heater section. See col. 8, ll. 43-56. Although Kato does not explicitly disclose the use of the opening for the reduction of pressure between the heating element and the support, this opening 52 would inherently reduce any pressure generated between the heating element and the support because the opening

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would allow any pressure build-up to equilibrate (i.e. lessen) over the space of opening 52 and the reference passage of porous element 54.

4. With respect to the gas detecting section, Kato discloses a solid electrolyte diaphragm 20 made of stabilized zirconia and a pair of electrodes (22, 24) disposed on one and another of the diaphragm surfaces. See fig. 4 and col. 5, l. 61 - col. 6, l. 18.

5. With respect to the broadly defined air inlet space, any number of the air containing spaces (e.g. the porous layers 32 and 34) would read on the defined air inlet space giving the claim language its broadest reasonable interpretation.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kato. Kato set forth all the limitations of the claims, but did not explicitly recite the use of an area for the opening section of 10 mm² or less, or the use of a location for the opening between 10 and 12 mm from the front end of the sensor. With respect to the area, it would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize less than 10 mm², since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233. Moreover, the use of a smaller opening would have created less volume for the

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opening resulting in a reference gas environment requiring less necessary leak current to fill it with oxygen. With respect to the distance of the opening, it also would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize 10 and 12 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Allowable Subject Matter

8. Claims 2-4, 6-8, 10-12, 14-16, and 18-20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter: With respect to claim 2, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1 and 2 with particular attention to the opening section being provided so that at least a part of the support is exposed to an external atmosphere. With respect to claim 4, the prior art does not disclose nor render obvious all the cumulative limitations of claims 1 and 4 with particular attention to the opening section being provided so that at least a part of an interface between the heating element and the support or an interface between the lead and the support is exposed to an external atmosphere. Kato is drawn to a sealed reference chamber and teaches away from the exposure of any of the support structure being exposed to an external atmosphere (col. 2, ll. 41-47). The remaining allowable claims depend from either claim 2 or 4 and contain allowable subject matter based on their dependency from these claims.

Response to Arguments

10. Applicant's arguments with respect to claims 1, 5, 9, 13, 17, 21, and 22 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KAJ K. OLSEN whose telephone number is (571)272-1344. The examiner can normally be reached on M-F 8:00-4:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on 571-272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Kaj K Olsen/
Primary Examiner, Art Unit 1795
August 19, 2008